

WHAT IS CLAIMED IS:

1. A method of controlling ramp up temperature of a heater in a fuser of a printer, comprising the steps of:
providing a ramping profile for various steady state temperatures;

controlling, by closed loop control, travel along said ramping profile, so as to lock into individual temperatures along an arc of said ramping profile;

pointing to higher ones of said individual temperatures along said ramping profile at discrete time intervals;

tracking each of said individual temperature along said ramping profile, by said closed loop control, until a next individual temperature is set; and

running said heater at a steady state temperature when said individual temperatures near said steady state temperature.

2. A method of controlling ramp up temperature of a heater in a fuser of a printer, as recited in claim 1, wherein said closed loop control is performed using one of proportional control, integral control, derivative control, and a combination of proportional control, integral control, derivative control.

3. A method of controlling ramp up temperature of a heater in a fuser of a printer, as recited in claim 2, wherein said closed loop control is a combination of proportional, integral and derivative control, and is used to adjust a duty cycle of said heater conducting across an integer number of AC half cycles.

4. A method of controlling ramp up temperature of a heater in a fuser of a printer, as recited in claim 1, wherein said heater is turned on using one of full on/full off control and phase delay control.

5. A method of controlling ramp up temperature of a heater in a fuser of a printer, as recited in claim 1, wherein thermal stress to said fuser is minimized due to consistent temperature ramping properties of said ramping profile.

6. A method of controlling ramp up temperature of a heater in a fuser of a printer, as recited in claim 5, wherein an amount of energy applied to said heater at the start of a print job is limited by the further step of only turning on said heater when a temperature of said heater falls below said ramping profile.

7. A method of controlling ramp up temperature of a heater in a fuser of a printer, comprising the following steps:
 providing a ramping profile;
 feeding print media toward said fuser;
 sampling an actual temperature of said heater;
 setting a ramp pointer to a point on said ramping profile;

comparing said actual temperature of said heater to a point on said ramping profile at set intervals;

turning on said heater ~~is~~ if a temperature of said fuser is less than said value on said ramping profile;

maintaining said heater turned off when said temperature of said fuser is greater than said value on said ramping profile; and

once said heater is on, said fuser ramps up following said profile to a steady state temperature.

8. A method of controlling ramp up temperature of a heater in a fuser of a printer, as recited in claim 7, wherein said point on said ramping profile is said steady state temperature.

thermal stress to said heater is minimized due to consistent temperature ramping properties of said ramping profile.

14. A system for controlling ramp up temperature of a heater in a fuser of a printer, as recited in claim 13, wherein an amount of energy applied to said fuser at the start of a print job is limited by turning on said heater when a temperature of said fuser falls below said ramping profile.

15. A system for controlling ramp up temperature of a heater in a fuser of a printer, comprising:

means for storing a temperature ramping profile;

means for feeding print media toward said fuser;

means for setting a ramp pointer to a beginning of said ramping profile;

means for comparing an actual temperature of said fuser to a value on said ramping profile at set intervals;

means for turning on said heater is if a temperature of said fuser is less than said value on said ramping profile, and ramping up from that point on said profile;

means for maintaining said fuser turned off when said temperature of said fuser is greater than said value on said ramping profile; and

means for ramping up to a steady state temperature once said fuser is on.

16. A method of optimizing first copy time by controlling ramp up temperature of a heater in a fuser of a printer, comprising the following steps:

providing a ramping profile;

feeding print media toward said fuser;

setting a ramp pointer to a beginning of said ramping profile;

comparing an actual temperature of said fuser to a value on said ramping profile at set intervals;

^A turning on said heater ~~is~~ if a temperature of said fuser is less than said value on said ramping profile, and ramping up from that point on said profile;

maintaining said fuser turned off when said temperature of said fuser is greater than said value on said ramping profile;

once said fuser is on, said fuser ramps up to a steady state temperature; and

moving said print media adjacent said fuser to print on said print media, thus optimizing said first copy time.

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17. A method of controlling ramp up temperature of a heater in a fuser of a printer, comprising the steps of:

providing multiple ramping profiles each having various steady state temperatures;

selecting one of said multiple ramping profiles;

controlling, by closed loop control, travel along said one of said multiple ramping profiles, so as to lock into individual temperatures along an arc of said ramping profile;

pointing to higher ones of said individual temperatures along said one of said multiple ramping profiles at discrete time intervals;

tracking each of said individual temperature along said one of said multiple ramping profiles, by said closed loop control, until a next individual temperature is set; and

running said heater at a steady state temperature when said individual temperatures near said steady state temperature.

18. A method of controlling ramp up temperature of a heater in a fuser of a printer, as recited in claim 17, wherein said one of said multiple ramping profiles is selected based upon a type of media being employed and a speed of printing.

means for storing a fuser temperature ramping profile
for various steady state temperatures;

means for pointing to higher target temperatures along said ramping profile at discrete time intervals;

means for running said fuser at a steady state temperature when said fuser said ramping profile nears said steady state temperature.

10. A system for controlling ramp up temperature of a heater in a fuser of a printer, as recited in claim 9, wherein said control means uses one of proportional control, integral control, derivative control, and a combination of proportional control, integral control, derivative control.

11. A system for controlling ramp up temperature of a heater in a fuser of a printer, as recited in claim 10, wherein said control means uses a combination of proportional, integral and derivative control, and adjusts a duty cycle of said heater conducting across an integer number of AC half cycles.

12. A system for controlling ramp up temperature of a heater in a fuser of a printer, as recited in claim 9, wherein said heater is turned on using one of full on/full off control and phase delay control.

13. A system for controlling ramp/up temperature of a heater in a fuser of a printer, as recited in claim 9, wherein